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ABSTRACT

The paper discusses the relationship between social class and infantile autism and provides supporting evidence for L. Kanner's original findings regarding a relationship between infantile autism and high socioeconomic status. Section I contains studies which are clinical or impressionistic in nature: while Sections II and III focus on studies on the relationship between social class and infantile autism in large samples, both in foreign countries and the U.S. A fourth section considers a number of studies which have been used by the proponents who do not believe in socioeconomic differences between autistics and nonautistics. The issue of the universality of autism is also raised, and some indications are cited that infantile autism seems to be rare among minority groups. The review shows that in many studies where the genuinely autistic children were separated from those with autisticlike symptoms caused by specific organic etiologies, the intellectual superiority of the parents was confirmed. (SB)

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SOCIOECONOMIC STATUS AND CULTURAL BACKGROUND OF PARENTS OF AUTISTIC CHILDREN

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SOCIOECONOMIC STATUS and CULTURAL BACKGROUND OF PARENTS OF AUTISTIC CHILDREN

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In 1943, Kanner delineated a new diagnostic category which he identified as early infantile autism. An analysis of his cases revealed that the parents of these children were outstanding individuals in their professions. In 1949, Kanner wrote, "My research of autistic of unsophisticated parents has remained unsuccessful to date."

Subsequent studies on the sociocultural background of the parents of autistic children have been contradictory. A confirmation of Kanner's findings, which emphasize a link between social class and autism does not appear to fit with a biological causation of autism, a theory which is held among numerous psychiatrists. A review of the literature will show that one problem is the indiscriminate use of the diagnosis of autism. Parents of autistic children who have been diagnosed according to the criteria originally used by Kanner, show definite intellectual superiority over parents of children diagnosed as suffering from childhood schizophrenia or any other serious deviance.

The second issue which will be raised in the course of the presentation is the universality of the illness. There are some indications that infantile autism seems to be very rare among minority groups in the United States. There are some reports from Latin America, China, Africa that infantile autism is also rather rare or almost non-existent. On the other hand, infantile autism seems to be quite common in Japan. A large-scale study in Australia revealed that there are no autistic children among the Italian immigrants, who represent the largest foreign group there. Tinbergen, the Nobel Prize recipient, has indicated that infantile autism is on the increase in a number of Western and Westernized societies. The implications of such findings will be discussed.

SOCIOECONOMIC STATUS and CULTURAL BACKGROUND OF PARENTS OF AUTISTIC CHILDREN

The purpose of this paper is to discuss the relationship between social class and infantile autism. A large number of such studies have been published and the latest statement on the subject (Schopler, Andrews, Strupp, 1979) is that parents of autistic children are not of higher socio-economic status than the parents of non-autistic children. In this review we shall critically examine the evidence. A definite answer to the above question is of great importance since it is related to the nature/nurture question. As indicated by Cantwell, Baker and Rutter (1978), none of the theories so far proposed to explain the social class association appear at all plausible, but all lack empirical support. According to these authors, the link between social class and autism does not appear to fit with a purely biological causation of autism, which seems to predominate in the literature, and it remains an awkward finding which still demands an explanation (p. 290).

One of the few proponents of the intellectual and economic superiority of parents of autistic children is Rimland (1964). However, he maintains that the illness is biologically determined, despite this demographic difference. A criticism of the environmental etiology of infantile autism is illustrated by Rimland's comments, as follows:

> Actually the disagreements as to the causes of psychosis in children is beginning to be dispelled, since I noted a decade ago (Rimland, 1964). So much evidence is accumulating against the psychogenic viewpoint that the ranks of the adherents of this viewpoint are thinning quite rapidly (1974, p. 137).

Rimland is quite right. There are fewer statements in the literature about the environmental nature of infantile autism. This does not mean, however, that there is strong evidence that it is biologically determined. It would be useful to read what Kanner had to say about the nature/nurture polemic of infantile psychoses. In view of his many writings on the subject, we have selected a statement from the most recent edition of his book, Child Psychiatry (1972) as follows:

> Even from a purely statistical point of view, the correlation of childhood schizophrenia with parental attitudes is far higher and more consistent than its correlation with heredity, configuation in the body, metabolic disorders, or any other factor. ...Even these few examples suffice to show how, regardless of the problems of heredity and constitution, life experiences have confused these children, made normal relationships impossible and driven them to withdrawal and schizophrenic behavior (p. 707).

In 1943 Kanner coined for the first time the diagnosis of early infantile autism, when he described 11 children who were severely mentally handicapped. He provided a listing of symptoms to define and identify this particular group. Furthermore, in his presentation he indicated that all of these children had come from highly intelligent families. All but three were represented in the American Men of Science and Who's Who in America. Nine of the mothers were college graduates. In 1949, his sample increased to 55 cases and he stated that, "My search for unsophisticated parents of autistic children had remained unsuccessful to date" (p. 421). In 1955, in an analysis of 105 of such children, he found that 74% of the fathers (38% did postgraduate work) and 49% of the mothers (11 did postgraduate work) had completed college.

A number of subsequent researchers have claimed that they have not found Kanner's association of infantile autism with high socioeconomic status. We shall provide evidence in this paper that such claims are unwarranted for

the simple reason that investigators have expanded the use of the label to include other developmental disabilities, including organically impaired children. Therefore, their samples could not be compared with the sample originally seen by Kanner. On the contrary, we shall provide evidence to to the effect that Kanner's original findings still hold true today, and that efforts to disclaim his findings are not based on scientific evidence. It is to be noted that at times infantile autism, childhood schizophrenia, and childhood psychoses have been used interchangeably, leading to a great confusion in the literature.

In an editorial to the Journal of Autism and Childhood Schizophrenia, Schopler (1978) reflects on the confusion and disagreement concerning the diagnosis of autism. He states, "this confusion has often led to errors in sample selection, needless frustration among clinicians and investigators, and unnecessary misinterpretation of important research" (p. 137). It will be seen that in a review of the literature by Schopler and al. (1979) and the presentation of their own data, such caution regarding the use of appropriate criteria for diagnosis of early infantile autism was less than adequate.

In an astute discussion of the label "autism" Rutter (1978) indicates that the choice of the word has not been ideal in view of the difficulties encountered with this concept. However, he maintains that the word itself has no intrinsic value of its own, and that no information is gained by analyzing it. Kanner's use of the term implies a hypothesis on his part as a description of a disease entity. However,investigators have taken the liberty in changing or extending the criteria which has made comparative studies or research on seriously deviant children quite complex.

Our review of the literature will be divided into four parts. The first section will include studies tending to be clinical or impressionistic in nature. The second and third sections will be devoted to studies which appear to have been more sophisticated and would tend to have non-autistic children as controls. We have separated them into two parts; those studies which were conducted in the United States and those studies conducted in other English-speaking countries. Under this rubric we have included large scale epidemiological studies. The fourth section will include a review of papers primarily reviewed by Ornitz and Ritvo (1976) and Schopler and al. (1978), which, according to them, confirm the equal socioeconomic status of parents of autistic and non-autistic children. However, a careful analysis of all such studies reinforces Kanner's contention that parents of genuinely diagnosed autistic children have a superior background.

I. Clinnical and Impressionistic Studies

Studies covered under this rubric were not quite systematic and tended not to use control groups. As examples of an impressionistic research regarding the higher socioeconomic status of the parents of the autistic child, and likewise the higher intelligence level, we can cite the following:

Despert (1951) writes, in connection with the high intellect of the mothers of seriously disturbed children, "Some of the mothers were emotionally detached and seeking gratification from intellectual sources rather than from contact with people" (p. 346). She further stated that the extensive acquisition of knowledge of musical records, license plates, astronomical data, large and inappropriate vocabulary, word spelling, all developed by the autistic child, seem to have been affected by the over-intellectualization of the mother.

Rimland (1964) has provided an extended review on the superiority of parents of autistic children, and he cites evidence that selective factors were not instrumental in this high percentage of parents of higher SES and intellectual level.

In his review of the literature, Rimland (1964) provides numerous examples of case histories provided by psychiatrists which have pointed out the intellectual superiority of the parents. One example is the work by Darr and Worden (1951). In a detailed description of a case they followed for 28 years, they indicated that a composite description of the parents corresponded to Kanner's observation. They state, "The intellectual interests, lack of warmth, and the mechanical relationship with the child are evident" (p. 568). The father was described as "an exceptionally clever engineer" (p. 562). Both parents were extremely active in liberal organizations.

Kurt Goldstein (1959) also dealt with infantile autism. In his discussion he suggests that there is a similarity between the idiot savant and the autistic child. Like Kanner, Goldstein's observation convinces him that autistic children seem to come from superior homes. He writes:

> "...Parents, and particularly the mother of these children, were often not well-suited to handle the baby in an adequate way. Parents of these children were often especially gifted persons, intellectual, and ambitious, and their own high intelligence makes them overly interested in the development of the "intellectual" capacities of the infant. This is more often true when the child's extraordinary gifts come to early observation and it is to be expected that the immediate relationship between mother and infant is somewhat neglected" (p. 546).

The implication of Goldstein's statement that autistic children are themselves of superior intelligence was basic to King's (1975, 1978) own hypothesis. King analyzed in depth twelve cases of autistic children and proposed that they are likely to be highly endowed, like their parents. Because of the double-bind relationship which develops between mother and child, the child tries to achieve its escape by not responding to this uncomfortable situation. However, since the child needs stimulation to substitute for adequate mothering, he turns to the nonhuman world for solace, and develops infantile autism.

Moore and Shiek (1971) go even further in proposing a theory of early infantile autism which considers prenatal factors. They propose that fetuses with an inherited high potential for intellectual superiority are developmentally ready for imprinting before their birth. Neurologically, advanced fetuses in a restricted uterine environment with lack of imprinting could tend to develop autistic behavior after birth.

II. Studies on the relationship between social class and infantile autism, with large samples

The following studies were conducted in England and countries of the commonwealth and, without any exception, they found that parents of well-identified autistic and even non-autistic but seriously disturbed children were of superior intelligence and higher socioeconomic status. Some of the investigators used Hollingshead's social class classification (Hollingshead and Redlich, 1957) where Class I and Class II represent the upper classes and Class V the lowest social class.

In a London study, Anthony (1958) found that there were differences between the cases which he labeled primary and secondary autism. The first group came from the professional classes and was low in organic involvement while the second group, drawn from the working class, had a high organic involvement. The first group included children with Kanner's syndrome, Bender's first age group, pseudodefectives, and Despert's "no-onset" type which followed an early and chronic course. The second group with a later onset, in the ages of three to five, and with an acute course, included cases of Heller's disease, the DeSanctis dementias, Mahler's symbiotic psychosis, Bender's second age-group and Despert's "acute-onset" type. A third type, Bender's psychopathic classification, was combined later with the second group. The wide variety of childhood psychotic disturbances in both Anthony's and Bender's studies might be explained by the fact that London and New York had similar heterogeneous populations with large groups of immigrant families.

In a study of families of psychotic children, Creak and Ini (1960) interviewed a number of times the families of 102 children who were originally seen for treatment either privately (1/3) or at the Hospital for Sick Children in London between 1942-1957. They found that 60% of the fathers of these

children belonged to social class I and II while, in the general population, only 18.3% belong to social class I and II.

In a study conducted in the northers part of England at Newcastle-on-Tyne, Kolvin et al (1971) made a strong plea for a more accurate classification of the disturbed children. He reported that parents of children with infantile psychosis (whose onset was before the age of three) belonged more frequently to social class I and II (upper), while most parents of children with a later onset of psychosis (after the age of five) belonged to social class IV and V (lower). Parents of the infantile psychosis group had a low rate of psychotic illness, while parents of the later onset group had a significantly higher rate of psychotic illness. According to Kolvin et al., the lack of proper classification in previous studies led to the submerging of important differences.

Rutter and Lockyer (1967) examined the records of 63 patients at Maudsley Hospital from 1950 to 1958. The great majority showed abnormalities from early infancy and descriptively were like Kanner's primary infantile autistic children. These children were compared to 63 other children from the same hospital who were not psychotic. They found 56% of the parents of psychotic children belonged to social class I and II.

Cox, Rutter, Newman and Bartak (1975), in a comparison of 19 autistic and 23 dysphasic children selected from various hospitals in England, found that three-quarters of the fathers of autistic children held professional or managerial posts compared to one-third of the fathers of dysphasic children. In keeping with this difference in background, more the parents of autistic children owned their own homes, had cars, had resident help with the children and enjoyed spacious living accommodations.

Gibson (1968) compared the education of the parents of 60 children

with infantile autism (which included organic cases) and 100 brain-damaged children in Canada. Parents of the first group had a significantly higher educational level than the second group.

Thus, all studies, without any exception, have found that parents of autistic children, some of whom may have been labeled schizophrenic children or psychotic children, belong to a higher social class than the general population. The above studies represent a study of populations in specific hospitals or treatment agencies. We shall now review large scale epidemiological studies which have covered large areas in England and Australia. In all instances, again, parents of autistic children were found to be of higher socioeconomic class.

Lotter (1967) conducted an epidemiological study of "autistic conditions" among children aged 8-10 in the county of Middlesex (England) which included 78,000 children in the selected age-range. Behavior questionnaires were completed by workers where children would be found. Using a modified version of Creak's criteria (1961) for the selection of cases, Lotter isolated 54 children who fulfilled the criteria, and their families were interviewed and administered an intelligence test. On the basis of 22 behavior items, children were grouped under the following categories:

(1) Group A (autistic), n = 15, showed the highest overall impairment.

(2) Group B (autistic), n = 17, had lower scores and showed more heterogeneous symptoms.

(3) Group C (non-autistic, handicapped), n = 22, had the lowest impairment scores and were retained as a comparison group.

Lotter estimated that the prevalence rate of autistic children (Groups A and B) is 4.5 per 10,000.

A study of the families revealed the following information: 60% of Group A and 31% of Group B had parents social class I and II. 43% of parents of Group A, 12.5% of Group B, and 5% of Group C had professional occupations or were university graduates. Parents of autistic children were found to be of higher intelligence than the other group, using the Mill Hill Vocabulary Scale and the Raven's Matrices Scale. Furthermore, mothers and fathers of the autistic children were more intelligence than the mothers and fathers of the non-autistic group of similar social and educational level. While the scores of the mothers of autistic children tended to be equal or higher than the husbands, the mother's education of the non-autistic group tended to be lower than the husband's. Previous findings about the lack of mental illness in the parents of autistic children was confirmed by the study.

The salient finding in this research is the high socioeconomic status

of the parents of autistic children. Previous studies have been criticized because of diagnostic bias. Lotter (1967) feels that his study precludes the case selection bias because children diagnosed as autistic were selected before the interview of the parents. To strengthen his argument, Lotter writes the following:

> "For the social class distribution of the autistic probands (AB) to be made similar to that of the general population, a further 29 autistic children would be needed in social class III to V. That anything like this number could have been missed is extremely unlikely" (p. 170).

Lotter (1967) points out that Kanner and Lesser (1958) had found a higher socioeconomic level in their group than in his. However, it should be made clear that Lotter did not use Kanner's criteria exclusively. To Lotter, the term "autistic" was used to describe all cases meeting the survey selection criteria and is not a synonym for Kanner's syndrome. Lotter recognized that this might be a factor. Karner did not, apparently, include severely subnormal children who were retarded in early development.

Another major finding consistent with previous research is the rarity of psychotic illness in parents. Lotter, by combining his studies and those of others, estimates the rate to be 1%, which is certainly a far cry from the rates (12.5%) found by Kallman and Roth (1956) and about 25% for fathers and almost 50% for mothers found by Bender and Grugett (1956).

As indicated in our review of the literature, these differences could simply be attributed to the diagnostic criteria used in various studies. Lotter (1967) concludes that investigation of etiological factors necessitates the reporting of detailed, uniform data, so that comparison between different groups may be more productive.

Three large scale studies conducted in Australia provide further support to the general finding that parents of autistic children tend to have a higher socioeconomic status, and are intellectually superior to parents of non-autistic children. Harper and Williams (1976) located all children who were born between 1950 and 1970 who had been referred to Sydney admission centers for assessment and diagnosis, and who had been found to be autistic. Diagnosis established with criteria given by Creak and Ini (1961) and the W.H.O. classification by Rutter et al. (1969) provided 131 cases (88 males and 43 females). It is to be noted that such diagnostic criteria do not exclude children with organic problems.

These autistic children were compared to a group of children who were emotionally disturbed, with factors of age, sex, and socioeconomic status controlled. They were selected from the children admitted to a psychiatric unit for children in Sydney. The control group included children admitted to a Sydney teaching hospital because of respiratory and urinary tract infections. These authors indicated that they controlled for socioeconomic status for the emotionally disturbed children and found that the parents of autistic children left school later and attained a higher level of education than did the parents of emotionally disturbed children. When the parents of autistic children were compared with the general population, it was found that Class I and Class VI were over-represented. In general, occupational status and high educational level were found to be higher among the parents of autistic children. The author does not try to explain why Class VI (lower class) was over-represented.

The purpose of the Harper and Williams (1976) study was to show that autistic children have a higher incidence of reproductive complications and early environmental stress. It is possible that the inclusion of organically damaged children tends to lower the economic status of the group. It is possible

that autistic children with no evidence of organicity, have parents with higher education, while autistic children who are organically impaired have parents of lower education. It is also possible that the inclusion of both types in Harper and Williams' sample is responsible for the bimodal distribution while the overall status may be higher than the non-autistic group. No analysis was conducted to differentiate the two groups. As a result of this study, Harper and Williams (1974) conclude that a combination of biological vulnerability and stressful environment were responsible for the development of infantile autism.

In a similar study by Prior et al. (1976) in Australia, there was an excess of parents in the upper classes for both Class I and Class II. They write the following:

> "...an excess of parents of autistic children in the upper social classes and a deficiency in the lowest classes is a consistent finding in all studies and raises some pertinent and as yet unanswered questions" (p. 181).

Another recent study conducted in Australia by Marsh (1977) identified 21 schizophrenic children in Sydney, Melbourne and Adelaide. Clear-cut cases with evidence of organicity were excluded from the sample. It was found that these children were likely to belong to families of an executive or professional class. Twenty-five percent were college graduates. Those who were found to have marked intellectual subnormality were children of university educated parents. Four out of five children with university educated parents were in schools for autistic children.

III. Studies conducted in the United States

While all studies conducted in England have found, without any exception, that parents of autistic children have a higher socioeconomic status, studies conducted in the United States seem to have developed in many critical reviewers a skepticism about the authenticity of such differences. In this section we shall include three studies which had large samples and which found that parents of autistic children were of higher SES. We shall also include one study which found no intellectual differences between parents of autistic children and parents of schizophrenic children. It should be stated, however, that the latter study dealt only with seven sets of parents. Whenever no differences were found, an explanation will be provided by this reviewer. It is distressing to note that, at times, reviewers tend to misinterpret the data and select whatever information would support their belief on the subject without going into the details of the study.

Lowe (1966) examined the records of children seen in the Children's Service of LaRue D. Carter Memorial Hospital in Indianapolis. It is the only residential treatment unit for disturbed children in the entire state of Indiana, where the study was conducted in 1955-1963. Like Treffert's study (to be discussed later) this covers an entire state and the patient population may represent all geographic areas of the state, as well as families of different socioeconomic status. Children were divided into three diagnostic categories:

1. Autistic and/or symbiotic (65)
2. Chronic undifferentiated schizophrenics (34)
3. Other diagnoses of emotional disturbance (246)

Their ages ranged from 18 months to 11 years. Lowe's survey found that the fathers of children diagnosed as autistic or chronic undifferentiated schizophrenic tended to have a higher educational level than did the fathers

of children given other diagnoses. Of the three groups, 37.22% , 17%, and 6.32% of the respective fathers had a college education. For the mothers, the percentages were 29.08%, 6.45%, and 6.29% respectively.

While for the entire state 42% of the population had completed high school, 87% of the parents of the autistic group, 74% of the chronic undifferentiated schizophrenic group, and 41% of the disturbed group had completed high school.

It is to be noted that in Lowe's study (1966) mothers of autistic children had more education than mothers of non-autistic children. Lotter (1967) went a step further and tested the I.Q. of mothers of autistic children and of non-autistic children of the same socioeconomic status. He found that the mothers of these autistic children were of superior intelligence.

Von Brauchitsch and Kirk (1967) reported, after studying 141 patients at the Child Psychiatry Division of Ypsilanti State Hospital (Michigan), that the diagnosis of schizophrenia seems to be more frequent in the hospitalized children from upper socioeconomic classes. They also found that the prognosis of the disease is apparently less favorable in the upper classes, with a higher tendency to run a chronic, unremitting course. Almost all of the 12 children who showed "autistic" features" belonged to the upper class. Only two schizophrenics from low socio-economic class were regarded as autistic children. A letter addressed to the writer by Dr. Von Brauchitsch, who is professor of psychiatry at the University of Oklahoma,seems to confirm his initial belief. He writes as follows:

> "While I was a Chairman of the Department of Psychiatry at Henry Ford Hospital, I had occasion to see autistic children in consultation, and my observation at that time seemed to confirm my original hunch regarding a possible social etiology of childhood autism. I did not any longer formulate an idea that autistic children were necessarily the result of upperclass upbringing, but I noticed with very few exceptions the prevalence of the classic autistic symptoms in children originating from families who had undergone a rapid transition through social strata. Almost always was it possible to discover the element of overwhelming social insecurity or social incompatibility in the parents. Thus, for example, there was only one black autistic child in the entire group, but it was the son of a black physician who practiced entirely in a white neighborhood. Another autistic child seemed to originate from a lower class family--the father being a truckdriver, but on inquiry it turned out that the mother had a Ph.D., etc."

Another research which has cultural implications is the study conducted by Kaffman (1972), the Medical Director of the Kibbutz Child and Family Clinic in Tel Aviv, Israel. He pointed out that it would be very hard to find any other place in the world where children would be subject to more intensive psychiatric observation. While he considers his sample small, he indicated it is worthwhile mentioning that out of a patient load of 3,000 children during a period of 15 years, he was able to identify only eight children who seemed to suffer from early childhood psychosis with autistic features. However, all of them displayed "soft" signs of neurological impairment. Epileptic fits, complication of pregnancies, premature births were implicated.

In the course of these years Kaffman failed to find a single "pure" case of psychogenic psychosis prior to the age of twelve. Kaffman offers two hypotheses to explain this total lack of childhood psychosis. The first is that child rearing practices in the kibbutz may prevent psychotic illness in children, which, incidentally, is subscribed to by Bettelheim. The second is that early detection of deviation from normal standards, with immediate intervention, could be responsible for this non-existence of psychogenic

psychosis. Kaffman is more inclined to support this second hypothesis.

Treffert (1970) conducted a number of studies in the State of Wisconsin. He obtained printouts on all patients under age 12 who were seen in any of the appropriate institutions, in the entire state of Wisconsin between the years 1962 and 1967. Any seriously ill child was bound to be seen at an institution during this period. He divided the cases into three different groups:

Group A - Classical infantile autism, which excludes organicity, but has early onset (69 = 25%).

Group B - Psychotic disorders with autistic features, but late onset (158 = 57 %)

Group C - Probably psychotic, but complicated by organic factors (53 = 18%).

The unduplicated cases totalled 280, and on that basis the actual prevalence would be 3.1 per 10,000 (.7 per 10,000 for infantile autism).

49% of the fathers of Group A had completed college and beyond, while 19% of Groups B and C had achieved this level of education. Mothers of Group A likewise had an overall educational level which was higher than the mothers of Group B and C. Again, this level of education, as in Lotter's (1967) study, is lower than the level of education of Kanner's sample, but it is expected that epidemiological studies are likely to be more valid than data drawn from a single treatment center, as Cantwell et al. (1978) pointed out.

Treffert does not feel that his study provides direct support for the notion that early infantile autism should be considered as an entity apart from childhood schizophrenia. The most striking characteristic for him, however, is the parental education of Group A.

Levine and Olsen (1968) tried to test Rimland's generalization that all parents of autistic children are above average in intelligence. Five sets of parents of autistic children and two sets of parents of schizophrenic

children were included in their sample. The children, in general, were in institutions in Texas. All three major religious faiths were represented in the total sample. It was found that the educational and occupational level of the parents of both groups was above average, but not extremely high socioeconomic status. The parents were invited to three sessions for the administration of psychological tests under the auspices of the Dallas Society for Autistic Children. Average I.Q.'s for fathers and mothers was 109-110 respectively, and for the parents of schizophrenic children, it was 104-113. Contrary to Rimland's and Kanner's notion, these parents, according to Levine and Olsen (1968), these parents were not of superior intelligence on the basis of their own finding.

Needless to say, the above conclusion is not warranted on the basis of such a small sample, particularly since other studies with larger samples have found definite intellectual superiority in parents of autistic children as compared to parents of non-autistic children.

Studies Used Inappropriately in
Opposition to Kanner's Findings

In this section we shall review a number of studies which have been used by the proponents who do not believe in the SES differences between autistics and non-autistics. (See Tables in Appendix). It will be noted that in every instance there was no basis for their erroneous conclusions. Either there was a misunderstanding on their part as to the contribution of the study or the samples, or they did not include autistics, or may have included some.

In a review of the literature on infantile autism, Ornitz and Ritvo (1976) felt that on the basis of the Ritvo et al. (1971) study and two others (Allen et al. (1971) and McDermott (1971) this alleged superiority of higher intelligence and socioeconomic status of parents of autistic children was not supported. Ornitz and Ritvo (1976) write the following:

> "The first of these (McDermott et al., 1967) compared the distribution of autistics and "non-autistic psychotics" among five social classes. Ritvo and associates (1971) compared families of autistic patients with those of matched normal subjects (Allen et al., 1971)" (p. 615).

However, the samples used in the above three studies may not have been purely autistic as claimed by Ornitz and Ritvo (1976). One should bear in mind Kanner's statement that the label of infantile autism should be limited to specific cases that fulfill the major criteria which he spelled out: (1) the inability to relate to people; (2) an extreme autistic aloneness; and (3) the obsessive desire for the maintenance of sameness.

McDermott et al. (1967) indicated that they did not find significant

social class differences in the frequency of childhood psychosis (emphasis mine) within their sample at Ann Arbor, Michigan, which included 53 borderline psychotic children in a total of 76 subjects. They further stated that the frequency of the typical autistic or symbiotic psychoses was too rare to support any conclusion regarding social class relationship and these specific manifestations of pathology. It is interesting to note that the language of McDermott et al. seemed to support our contention regarding the relationship between culture and psychopathology. They stated:

> "Do the upper groups tend to isolate feelings more than others? It is felt that a characteristic of this group is to value the introspective and abstract style of thinking (versus the motoric style of the lower group) in their child-rearing practices" (p. 556).

It therefore would appear, on the basis of the above information provided by McDermott et al. (1967) that it was inaccurate for Ornitz and Ritvo (1976) to indicate that there was no correlation between socio-economic status and infantile autism, since McDermott's entire sample included primarily borderline psychotic children. Regarding the second study (by Ritvo et al. 1971), it would appear their sample did not consist entirely of bona fide cases of child autism. King (1975) pointed out that Ritvo et al. included in their autistic group "pseudoretardate children with atypical development, symbiotics and cases of childhood schizophrenia." Ritvo et al. (1971), in footnote to their article, pointed out that the "presence of other symptoms (seizures) or diseases did not preclude the diagnosis of autism" (p. 301).

The last study referred to by Ornitz and Ritvo (1976) in support of the lack of relationship between the socioeconomic class of the parents and autism was the report by Allen et al. (1971) whose purpose was to study intellectuality rather than social class in the parents of psychotics, sub-normals and normal children. They even wrote specifically that their study

"confirms the findings of Lotter (1967) that parents of autistic children come from higher socioeconomic classes than those of brain-damaged children" (p. 324). Allen et al. (1971), while describing their sample, stated that they compared "33 autistic and schizophrenic, (emphasis mine), 33 matched normals and 30 subnormals, mostly mentally retarded or brain damaged," the first two being matched for socioeconomic class (p. 311). Parents' intellectuality was measured by a series of subjective ratings, and the authors acknowledged that an interview was, at best, a crude instrument. There was no indication regarding the rater's awareness of the type of parent being interviewed. All groups were found to be alike in intellectuality.

However, when Allen et al. used more objective evaluation of the parents, such as the verbal I.Q. as measured by the vocabulary sub-test of the Wechsler Adult Intelligence Scale, fathers of autistic children were found to be higher in intelligence, while the mothers were lower. In their article Allen et al. (1971) refer to a study conducted in Japan by Kikuchi et al. (1970) which also found that the I.Q.'s of the fathers of autistic children were higher, while the I.Q.'s of the mothers were average. This Japanese study tended to agree with Allen et al.'s study, which expressed the following conclusion:

> "This study does not explain why children with an initial diagnosis of infantile autism have better educated parents, fathers with higher measured intelligence and families in the upper SES, unlike children with an initial diagnosis of brain damage or mental retardation" (p. 324).

It is to be noted that the group which was used as control for Allen et al's study were selected from a group of over 1,000 families who responded to newspaper stories, advertisements and direct solicitations at community group meetings. The authors are aware of the selectivity of such families and indicate the following:

> "Possibly the most important difference between the non-retarded and the two other parental groups was their awareness of being chosen because their children were normal and prompted them to expose themselves to their success rather than failure with children. Such variables could not be matched" (p. 316).

Needless to say that such a group would not be representative of their own social class because of their high motivation to participate in the study, and therefore, would not be a suitable group to compare with the parents of psychotic children.

Cantwell et al. (1978) find that Ritvo et al. included in their sample severely retarded children whose main clinical symptoms were stereotypes and abnormal responses to sensory stimuli, and who would not be considered autistic by other workers. It is interesting to note that, in Cantwell et al. (1978), studies by Allen et al. (1971) and Florsheim and Peterfreund (1974) are considered among those which show the superiority of parents of autistic children, while Ritvo and Ornitz (1976) consider the Allen et al. study disproves this difference. It would seem, therefore, that there is a disagreement between two investigators about the interpretation of a research study.

In an extended review of the literature on childhood schizophrenia by a group at the National Institute of Mental Health (Keith et al., 1976), the following conclusion was written regarding differences in SES between parents of autistic and non-autistic children:

> "Much has been written about the background of parents of autistic children, but one by one the myths about them have fallen away in the face of well-designed research protocols" (p. 547).

To support their conclusion, Keith et al. (1976) refer next to a study by Florsheim and Peterfreund (1974) who found that the mean I.Q. score of parents of "autistic children" was as follows: 109.2 for mothers

and 116.3 for fathers (ranging from 65 to 135). Cantwell et al. (1978) considered this study to be in support of the hypothesis of higher intelligence among parents of psychotic children.

It is to be noted that the subjects in Florsheim and Peterfreund's study (1974) were parents of psychotic children and the word "autistic children" was not mentioned. Since the 1974 study was conducted at the Henry Ittleson Center for Child Research, where Goldfarb (1970) was able to diagnose only two autistic children out of 56 cases, it is not clear how Keith et al. can be so categorical in disclaiming that autistic children have superior parents, when the 1974 study did not include autistic children in the sample.

The latest review on the relationship between social class and infantile autism was written by Schopler, Andrews and Strupp (1979). In 1972 they undertook a statewide study in North Carolina of families with seriously disturbed children. They were able to identify 522 children and they found that there was no SES distinction between those who were severely autistic, mildly autistic and those who suffered from related communication handicaps (non-autistic group). However, while they used the term "autistic" in the title of their article, they indicated that the terms "autistic and psychotic are used interchangeably" (p. 144). In a later article by Schopler, Reichler, DeVellis and Daly (1980), they provide further information regarding the criteria for their diagnosis, stating the following:

> "The resulting instrument was initially called the Childhood Psychosis Rating Scale CPRS). Because our scale reflected a broader conceptualization than Kanner's classic definition of autism, we had consciously chosen the term psychosis rather than autism, so as to minimize confusion. However, in light of increasing evidence that the definition of autism has expanded and is no longer restricted to Kanner's use of the term we now call our instrument the Childhood Autism Rating Scale" (p. 92).

Using Rimland's Check List which is very close to Kanner's criteria, Schopler and al. (1980) found that, out of the 450 cases of these disturbed

children, only 8 were considered autistic. On the basis of the above, their criticism of Kanner is not justifiable since they admit taking the liberty of expanding the definition of autism.

We reanalyzed their data and compared the social class between mildly and severely autistic, and obtained a Chi square of 3.58 which is close to 3.84 required for significance at the 5% level. Furthermore, when we compared black/white differences between mildly-moderately autistic and severely autistic, we found that the latter group had more white autistic children, which would thus include more of the upper class families. We found a Chi square of 4.83, which is significant beyond the 5% level. In conclusion, it can be stated there was no justification on the part of Schopler et al. (1979, 1980) in disclaiming that parents of autistics belong to upper socio-economic classes, inasmuch as they unilaterally widened the definition of autism. Nonetheless, when we reanalyzed their data, it was seen that the more severely autistic the group is, the more likely they come from upper SES families. As a result of all the papers reviewed, the answer to Schopler et al. (1979), whose paper is titled, Do Autistic Children Come From Upper Middle Class Parents? would be positive.

Reports from non-English-Speaking Countries

It is to be noted that studies conducted outside the English-speaking countries on autistic children tend to be somewhat less frequent, and largely anecdotal. However, all of the research studies we have been able to locate indicate that this phenomena of the superiority of the parents of autistic children is confirmed.

Alanen et al. (1964), in a study conducted in Finland, pointed out that the I.Q.'s of the parents of psychotic children ranged between 110-119. Studies in Germany (Bosch, 1970; Weber, 1966, 1970) found that the parents of autistic children came from families belonging to upper occupational levels. Bosch (1970) took the risk of calling Kanner's syndrome the result of an upper middle-class upbringing.

Brask (1970) as reported by Wing (1976), seems to be the only Scandinavian study on the epidemiology of childhood psychoses. This is somewhat surprising in view of the large scale epidemiological studies conducted in those countries on adult mental patients. Is it possible that childhood psychoses is less of a problem in the Scandinavian countries?

Brask found that the prevalence rates of childhood psychoses in Aarhus, Denmark is the same as in Middlesex (Lotter, 1967). Parents of the psychotic children in Aarhus had a "small bunch of teachers." However, she does not provide a comparison of SES between the parents of the patient population and the rest of the population.

Beeckmans-Balle (1973), a Belgian psychiatrist, pointed out that her study corroborates this difficult notion that requires interpretation - "the higher intellectual and socioeconomic status of the parents of autistic children" (p. 543). In 19 out of 21 cases the fathers held positions of responsibility.

SUMMARY AND DISCUSSION

The basic problem, as expounded in this paper, is that subsequent researchers to Kanner have expanded his definition of augism and have included clearly diagnosed brain-damaged children in their studies. In this review we have seen that a number of investigators have been critical of Kanner's observations on the tendency of parents of autistic children to be of high socioeconomic status. Kanner has consistently denied that he had a selected group, since he also saw children from the slums (Allen et al., 1971, p. 312). Rimland likewise (1964) has provided a number of arguments against Kanner's critics. Our review has shown that in many studies where the genuinely autistic children were separated from those with autistic-like symptoms caused by specific organic etiologies, the intellectual superiority of the parents was confirmed.

Kanner had pointed out many years ago that it became a habit to dilute the original concept of infantile autism and that overnight, the country seemed to have been populated by "a multitude of autistic children" (p.). Mentally retarded children with some bizarre behavior were labelled autistic. In his criticism, Kanner singles out studies by Ornitz and Ritvo (1968) who had declared that "early infantile autism, atypical development and certain cases of childhood schizophrenia are essentially variants of the same disease" (p.). He feels that these authors have shoved different conditions under a common etiologic umbrella. This obviously explains why these same authors have used studies with various diagnoses, as described previously in this paper, to discredit Kanner's original finding.

When Rimland (1974) asked Dr. Kanner a few years ago what percentage of children had been labelled "autistic" were really autistic, his answer was 10%.

Whether it be impressionistic, controlled or epidemiological in nature, most of the research studies reveal that parents of autistic children, as compared to parents of non-autistic children, seem to be of higher socioeconomic status, with higher education, and higher in intelligence. In one single study where the socioeconomic status was controlled, parents of autistic children were still shown to be of superior intelligence, particularly the father. However, it should be noted that the differences were not uniforn and do not reflect the unusual concentration of outstanding individuals as revealed in Kanner's observations. It is felt that some referral selectivity might have had some effect on the range of differences, but this does not explain the consistency in the finding.

We have already pointed out that this consistent finding concerning the higher SES of parents of autistic children is an awkward datum for those who believe in the organic etiology of the illness (Cantwell et al., 1978). It should be stated that the evidence for the organic etiology of the illness tends to be extremely meager or even non-existent. The following will illustrate the fallacy of drawing a definite conclusion with no evidence to back it up. In 1976, Ritvo indicated the following:

> "I feel we can say with certainty that autism is a physical disease of the brain (my italics) (p.).

However, a few lines later, he states:

> "Follow-up studies are just beginning to appear in the medical literature. The will eventually answer the question as to the natural history of the disease. Since we do not know the specific cause, nor neuroanatomical pathology involved, specific etiologically-based therapy is unavailable" (p. 7).

The latter statement clearly contrasts with the expression of certainty of his previous formulation. Interestingly, a year later, Ritvo (1977) who

had done extensive biological research wrote the following conclusion after conducting a survey of the literature on the biochemical studies of autistic children and other groups:

> "In this brief annotation, we have surveyed the biochemical studies of patients with autism, childhood schizophrenia and related developmental disabilities. These studies have raised more questions than they have answered - a sure sign that our science is young" (p. 378).

Call (1977) has pointed out that no demographic studies of children with autism have shown a higher incidence of the disease in the low socio-economic classes or in poor neighborhoods, where one might expect a higher risk factor in organic etiology with young children. Bleuler (1978) has discussed this problem of attributing organic etiology to mental illness with little evidence to support that conviction. He states:

> "Through to the present day, many clinicians and researchers are fully convinced that primary physical disorders (functional or structural) constitute the most essential onset conditions for schizophrenia, although they are unable to identify any clear symptoms indicating such supposed physical disorders. At certain times, researchers were even in danger of being reproached for having an unscientific, uncritical mentality and ostracized if they did not conform by "admitting" that there were physical explanations for schizophrenia. In a peculiar reversal of otherwise valid norms, assumptions used to be declared "scientific" that resulted from pure speculation or emotional needs, and any attempt to consider information that could actually be proved was rejected as "unscientific," (. 447).

In contrast, Ritvo, as Chairman of the Professional Advisory Board of The National Society for Autistic Children, provided the following definition for the organization:

> "Autism is a severely incapacitating life-long developmental disability which typically appears during the first three years of life. It occurs approximately five out out of every 10,000 births and is four times more common in boys than girls. It has been found throughout the world in families of all racial, ethnic and social background. No known factors in the psychological environment of a child have been known to cause autism. <u>The symptoms are caused by physical disorders of the brain</u>," (my italics) (p.).

Another definition which appears in a brochure of a parents' organization for autistic children reads as follows:

> "Autism is not a mental illness or any other kind of illness. ...The exact cause(s) are not known, but there is no doubt that the origin of autism is organic. Research suggests that autism may be caused by inborn disorders of metabolism. Other possibilities involve neurological defects or viral-related causation. Autism is found throughout the world, in every social class, with a uniform clinical picture."

If analyzed logically, these definitions certainly have their limitations. An uncritical acceptance of these definitions would only be a disservice to those most involved with those problems, since it instills a rigidity of thinking which does not allow for consideration of new ideas. Prejudgment on this most important area of child psychopathology can only lead to obscurantism.

In his Nobel Prize presentation in Stockholm, Tinbergen (1974, 1972) dealt with this problem. He wrote, "This corner of psychiatry is in a state of disarray and because we discovered that many of the established experts--doctors, teachers, and therapists--are so little open to new ideas and facts" (1974, p. 23).

Both of the above definitions make a point that infantile autism is to be found everywhere in the world. The important question which should be raised is not whether it is to be found everywhere else in the world, but whether the frequency of the illness is the same all over the world. Most of the studies reviewed here have been conducted in English-speaking countries. It is felt that an international and cross-national research on infantile autism may provide some of the answers to the questions which have been raised in this paper.

The importance of cultural factors in child psychiatry, as well as the lack of solid data on this topic, was emphasized by the West German

psychiatrist Stutte (1972). He argued that more attention should be paid to ethnic influences in the prevalence and phenomenology of mental disturbance in children. Transcultural studies should make it possible to have more solidly based ideas on such variables as children's tolerance to stress, the typical reaction of their development stage, and the ethnic stamp on their psychoses. Thus, it would seem that if one is to understand the antecedents of psychological disorders, the researcher should focus some of his attention upon sociocultural variables and their relationship to psychopathology. ***

*** If the reader is interested to pursue this topic further, a number of papers have been written by the author discussing the cross-national aspects of infantile autism and schizophrenia (1978, 1979, 1980).

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STUDIES USED BY SCHOPLER ET AL. (1979) AS EVIDENCE THAT THE PARENTS OF AUTISTIC CHILDREN ARE NOT OF SUPERIOR SOCIOECONOMIC STATUS

Phrases underlined by Dr. Sanua for emphasis

Title of their paper: Do autistic children come from upper-middle-class parents?

Year	Name & Title	Description of the sample	Findings, Comments or conclusions by authors
1960	Schain and Yannet Infantile autism: An analysis of 50 cases and a consideration of certain neurophysiologic concepts	...However, it should be emphasized that if the criteria as listed above were fulfilled, the presence of other conditions as diagnosed from the past history or by physical examination did not result in the exclusion of the child from this group. (p. 561) 42 percent of the cases had seizures	"...Our impression was that the educational and socioeconomic backgrounds of the parents were similar to those of parents of other categories of severely retarded children in the institution, although we have not subjected this impression to statistical study." (p. 562)
2. 1964	Wolff and Chess A behavioral study of schizophrenic children	"14 children diagnosed as suffering from childhood schizophrenia (early infantile autism)..attending special day school in Brooklyn" (p. 439)	"Unlike Kanner's patients, the present group of children had a varied social background, the father's occupation ranging from bus driver, truck driver, policeman to chemist, editor, musician. Seven families were Jewish, one was Puerto Rican, two of Italian and one of Greek descent. The other three families were at least of second generation Americans. The educational levels of the parents and family income were variable. None of these factors were related to the clinical states of the child."(p.446)
3. 1967	McDermott et al. Social class and mental illness in children - the question of childhood psychoses	"23 of the 76 children were seen as frankly psychotic, and 53 as borderline psychotic"	"..A diagnosis of typical autistic psychosis was rare.."p. 551, "..expression of the psychotic illness correlates with social class. Withdrawal and autism in their severe form occurred significantly more often in the professional executive group while disturbance of thinking occurred significantly more often in both professional executives and skilled working class groups." (p. 557)
4. 1971	Ritvo et al. Social class factors in autism	"74 patients who had been diagnosed as "autistic" were reviewed..presence of other symptoms (seizures) or diseases did not preclude the diagnoses of autism" (p. 301) Statement made by these authors in an earlier paper "Early infantile autism, atypical development, symbiotic psychosis and certain cases of childhood schizophrenia are essentially variants of the same disease."	King (1975) pointed out that Ritvo et al. included in their autistic group, "pseudoretardates children with atypical development, symbiotics and cases of childhood schizophrenia." Quotation from Cantwell (1978) who collaborated in Ritvo's study had the following to say about the sample: "The description of diagnostic criteria probably includes severely retarded children whose main clinical features were stereotypies and with abnormal responses to sensory stimuli and who would not necessarily be regarded as autistic by other workers." (p. 279) in the same article, Cantwell states: "The link between social class & autism does not appear to fit with a purely biological causation of autism, and it remains an awkward finding which still demands an explanation." (p. 290)

Year	Name & Title	Description of the sample	Findings, Comments or conclusions by authors
5. 1978	Campbell et al. Demographic and perinatal profile of 105 autistic children	Class distribution of the sample of 105 cases Class I and II 31 % III 13 % IV and V 56 % 31 truly autistic of the 105 were compared with 46 non-autistic siblings	Dr. Campbell in a convention on Child Psychiatry reported that parents of autistic children seem to be of higher socioeconomic status. This was reported in a chapter by Kernberg (In Bellak's Schizophrenic syndrome)
6. 1979	Schopler et al. Do autistic children come from upper class parents?	"The diagnosis is made with the aid of the psychosis Rating Scale described by Reichler and Schopler...The terms autistic and psychotic are used interchangeably." In a later article, 1980, Schopler points out the following: "only 8 of 450 were considered autistic by Rimland's criteria." (p. 100)	"The resulting instrument was initially called the childhood Psychosis Rating Scale (CPRS). Because our scale reflected a broader conceptualization than Kanner's classic definition of autism, we had consciously chosen the term psychosis rather than autism so as to minimize confusion. However in light of increasing evidence that the definition of autism has expanded and is no longer restricted to Kanner's use of the term, we now call our instrument the childhood Autism Rating Scale." (p. 92) In a reanalysis by Dr. Sanua of the data provided by Dr. Schopler in his article, testing for significance in SES between the mildly autistic & the severely autistic, he found that the chi square is 3.59 which is close to 3.84 required for significance at the 5% level. Furthermore comparing the black/white differences between mildly autistic and severely autistic, the latter group had more autistic children (which would certainly include more of the higher SES families), Chi square found was 4.83 significant beyond the 5% level. His findings tend to be contrary to his conclusions and this in spite of the fact that very few of his subjects were genuinely autistic.